

COMPUTER AIDED DESIGN											
■ CAD project starts	■ AED language development starts	■ CAD project moves to MAC	■ 5 Papers on Sketchpad and CAD Project in FJCC MIT CAD session	■ Dertouzos, CIRCAL -CAD for circuits	■ Lee & Thornton teach circuits with CTSS and AEDNET	■ Ross, Introduction to Software Engineering	■ CAD project ends	■ Univac announces AED for Univac 1108			
▲ McCarthy, Timesharing memo	▲ Licklider, Man/Computer symbiosis	▲ McCarthy, Computer utility model	▲ Timesharing multi-processor recommended for MIT	▲ PDP1 given MIT by DEC	▲ Dennis, PDP1 time-sharing system	▲ Dennis, Segmentation	▲ Dennis & Van Horn, Capabilities and spheres of protection	▲ Salzer, Multi-programming a multi-processor	▲ Denning, The working set model	▲ Schell, Recording multiple users online	▲ Schroeder & Salzer, Protecting hardware
TIMESHARING											
CTSS											
■ CTSS Version 1.0 running on IBM 709	▲ Corbato et al. first paper on CTSS	■ CTSS joining on P7094 at MAC	■ Corbato CTSS Manual	■ Truitt, COMIT on CTSS	■ Kludge (ESL) display operates on CTSS	■ Crisman, CTSS Programmer's Guide					
MATHEMATICS AND MAGSYMA											
▲ Stapel, Saint symbolic integration program		▲ Manove, INTEGRATE program improves on Saint	▲ Engleman, MATHLAB, symbolic math package			▲ Martin, Symbolic Mathematical Laboratory	▲ Moses, Expert symbolic integration program				at Symposium
ARTIFICIAL INTELLIGENCE											
▲ Minsky, Steps towards AI	■ Ernst, MH-1 computer-operated band	▲ Kotok, Chess program	■ Roberts, Machine perception of 3D solids	▲ AMF arm running in AI lab	■ Weizenbaum, ELIZA	▲ Gorry, Computer-aided diagnosis	▲ Guzman, Computer recognition of 3D objects	▲ Hewitt, Planner	▲ The Greenblatt chess program	■ Minsky & Papert, Perceptrons	■ Minsky, Semantic Information Processing
								▲ Winston, Learning from examples	▲ Horn, Shape from shading	■ Winston et al, "Copy demo," scene analysis controls arm	▲ Minsky, Turing Award lecture
EDITORS et al											
■ Murphy, PDP1 TECO text editor	▲ Lowrey, "Memo," editor in CTSS	▲ Salzer, Typeset line editor, Runoff formatter in CTSS	▲ Greenblatt et al, PDP6 TECO							▲ Greenblatt et al, PDP6 TJB justifier	■ Madnick, markets SC-70, child on
LISP et al											
■ McCarthy, LISP-1.5	■ McCarthy, LISP-1.5	■ McCarthy, LISP-1.5	■ McCarthy, LISP-1.5	■ McCarthy, LISP-1.5	■ McCarthy, LISP-1.5	■ McCarthy, LISP-1.5	■ McCarthy, LISP-1.5	■ McCarthy, LISP-1.5	■ McCarthy, LISP-1.5	■ McCarthy, LISP-1.5	■ McCarthy, LISP-1.5
MULTICS											
■ MULTICS specs out for bid	■ GE bid on MULTICS accepted	■ BTL joins GE and MIT in MULTICS development	■ FJCC presentation of MULTICS					■ First operational MULTICS comes to MIT	■ BTL participation in MULTICS stops	■ "UNIX running at BTL, influenced by MULTICS	
LABORATORIES											
■ MAC starts	■ CAD project moves to MAC	■ AI group moves to MAC			■ Architecture Machine Group starts					■ AI group becomes AI Laboratory	
THEORY											
■ Complexity of Turing machines											
LABWARE - LABORATORY DEVELOPED SOFTWARE AND HARDWARE											
▲ Slotz & Groneman, ARDS display specifications	▲ Chex et al, ARDS display manual	■ Moby (1/4 megabyte memory) for PDP6	■ ITS running on PDP6					▲ Eastlake et al, ITS Manual			
PARALLEL COMPUTING											
■ Rodriguez, Data flow graph precursor										■ Dennis, MAC parallel computing conference	
EDUCATION											
■ Logo research starts	■ Papert starts Logo project at MAC							■ Logo implemented on PDP10, 1973 on PDP11/45 for 11 and 12-year olds	▲ Wozencraft & Evans, programming course		
COMPANIES											
■ System Concepts, Inc., Nelson et al, Hardware 3-1/2	■ Computer Displays, Inc., Slotz et al, displays	■ Computer Displays, Inc., Slotz et al, displays	■ Computer Displays, Inc., Slotz et al, displays	■ Computer Displays, Inc., Slotz et al, displays	■ Computer Displays, Inc., Slotz et al, displays	■ Computer Displays, Inc., Slotz et al, displays	■ Computer Displays, Inc., Slotz et al, displays	■ Computer Displays, Inc., Slotz et al, displays	■ Computer Displays, Inc., Slotz et al, displays	■ Computer Displays, Inc., Slotz et al, displays	■ Computer Displays, Inc., Slotz et al, displays

Project MAC 25th Anniversary

▲ Scher & Schroeder, Protection review

■ CTSS turned off.

■ Outcomes of the users' conference

▲ Object, sparse polynomials

■ MACSYMA, the most popular on ARPANET.

■ MACSYMA licenses to Symbolics

● Winograd, *Understanding Natural Language*.
▲ Beeler, Gosper & Schroepel, HAKMEM: the hacker's memo

▲ Minsky, Frames, Sussman & Stallman, Constraint propagation.
▲ -com, Bonding & -o leads.
▲ Winston (ed.), *The Psychology of Computer Vision*

▲ Stallman & Sussman, Dependency-directed backtracking.
▲ Stolovits et al, DWL

▲ Doyle, Truth maintenance.

▲ Swartout, Programs which explain themselves.
▲ Pali, Causal representation of patient illness.
● Winston, *Artificial Intelligence*

● Marr, Vision.
● Stolovits (ed.), *Artificial Intelligence in Medicine*

● Hildreth, *The Measurement of Visual Motion*.
● Winston, *Artificial Intelligence* (2nd edition).
● Winston & Prendergast, *The A.I. Business*

■ Stallman, EMACS starts

■ EMACS working

▲ First EMACS manual.
■ Hammer et al, Etude text processor named

▲ Corbato et al, First seven years of MULTICS.
■ Drganick, *The Multics System*

■ Honeywell MULTICS released

■ Honeywell-MIT collaboration ends.

■ Project MAC renamed LCS

■ MIT ends DSRE

■ Media Laboratory starts

Ayer, First three provably hard problems.
Ayer, Second provably hard problem.
Ayer, Turing machine squarer.
Ayer, Basic paper on continuations.

■ Fischer & Meyer, compiler

▲ Fischer & Rabin, Addition decisions are hard

▲ Meyer, First hard problem.

▲ Pratt, Dynamic logic paper.

▲ Pratt et al, String matching algorithms.

▲ Rivest & Yau, K-12 heads are better than K-12s.

▲ Harel, *On the Complexity of Algorithms*

▲ Rabin, Randomized finite-field algorithms.

▲ Lipton, Good shuffle-exchange algorithms.

▲ Papadimitriou & Steiglitz, Combinatorial optimization.

▲ Leiserson, Area efficient VLSI computation.

▲ Sipser, Complexity of Boolean circuits.

▲ Leiserson, *Fast-freezing*.

▲ Pali, Universal arrays for control.

▲ Clark et al, Local area nets.

▲ Saltzer & Pogran, Star-shaped ring net.

■ Terman, RSIM logic circuit simulator starts.

■ LCS 10 MBS Ring commercialized.

■ TI makes a few Nu machines, then stops. NuBus survives.

■ 4th Revised release of Terman's RSIM.

■ NuBus used by Explorer 1985

■ MIT starts DSRE. Logo a focus.

■ Microcomputer Logo implementations started.

■ Abelson & diSessa, *Turtle Geometry*.

■ DSRE ends, Logo and related activities return to LCS.

■ Abelson, Apple Logo.

■ Abelson, *TI Logo*.

■ Abelson, Sussman, Struth and Interpretation Computer Program

■ 200 books, 800 papers, 25 users' groups for Logo

■ Media Lab starts, LCS Educational Computing group moves in

▲ Abelson & diSessa, *Boxer* paper.

■ Hewitt, ACTORS appear

▲ Rivest & Pratt, Mutual exclusion under unreliability.

▲ Hewitt, Message passing.

■ Reed, Accessing distributed, shared data.

▲ Liskov et al, Data abstraction in CLU.

▲ Liskov et al, CLU manual

▲ Guttag & Horning, Specifications in program design

▲ Guttag & Horning, Larch specification language.

■ REVE theorem-prover distributed

▲ Herlihy, Distributed replicated data

▲ Wehl & Liskov, Fault-tolerant distributed systems.

■ Distributed Systems

■ Abelson, *TI Logo*.

■ Abelson, Sussman, Struth and Interpretation Computer Program

■ 200 books, 800 papers, 25 users' groups for Logo

■ Media Lab starts, LCS Educational Computing group moves in

▲ Abelson & diSessa, *Boxer* paper.

■ Abelson, *TI Logo*.

■ Abelson, Sussman, Struth and Interpretation Computer Program

■ 200 books, 800 papers, 25 users' groups for Logo

■ Media Lab starts, LCS Educational Computing group moves in

▲ Abelson & diSessa, *Boxer* paper.

ABSTRACTION AND SPECIFICATION

■ Liskov & Zilles, Abstract data types.
▲ CLU named.

■ CLU implemented.
▲ Liskov & Zilles, Specifying data types.
▲ Guttag, Specifying data types

▲ Liskov et al, Data abstraction in CLU.

▲ Liskov et al, CLU manual

▲ Guttag & Horning, Specifications in program design

▲ Guttag & Horning, Larch specification language.

■ REVE theorem-prover distributed

▲ Herlihy, Distributed replicated data

▲ Wehl & Liskov, Fault-tolerant distributed systems.

SOCIETAL IMPACT

● Weizenbaum, *Computer Power and Human Reason*

● Dertouzos & Moses, *The Computer Age*

● Sex barrier in computer science, LCS and AI Labs.

● Turing, *The Second Self: Computers and the Human Spirit*.

● Dertouzos et al, SDI (Star Wars) debate.